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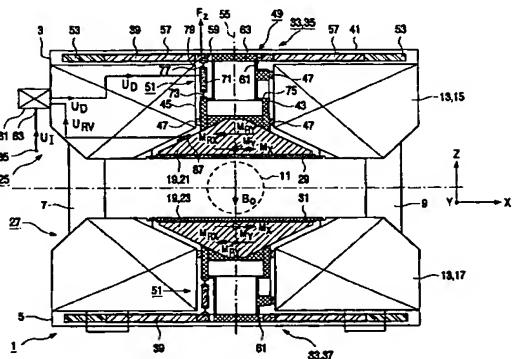
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(54) Title: MRI SYSTEM HAVING A GRADIENT MAGNET SYSTEM WITH A BALANCE MEMBER



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(57) Abstract: The invention relates to a magnetic resonance imaging (MRI) system (1) comprising an examination volume (11), a main magnet system (13) for generating a main magnetic field (B_0) in the examination volume in a Z-direction, a gradient magnet system (19) for generating gradients of the main magnetic field, and an anti-vibration system (33) for reducing vibrations of the gradient magnet system caused by a mechanical load (M_x, M_y) exerted on the gradient magnet system as a result of electromagnetic interaction between the main magnetic field and electrical currents in the gradient magnet system. According to the invention the anti-vibration system (33) comprises a balance member (39), which is coupled to the gradient magnet system (19) by means of an actuator system (51) and a coupling device (49) allowing displacements of the balance member relative to the gradient magnet system. The MRI system (1) also has a control system (81) which controls the actuator system in such a manner that the actuator system exerts upon the balance member a compensating mechanical load (M_{Cx}, M_{Cy}) which substantially corresponds to the mechanical load (M_x, M_y) exerted on the gradient magnet system. As a result, the actuator system exerts a mechanical reaction load (M_{Rx}, M_{Ry}) on the gradient magnet system which has the same magnitude as but is oppositely directed to the mechanical load (M_x, M_y) exerted on the gradient magnet system, so that vibrations of the gradient magnet system are effectively limited.